

Application No. 09/828,225  
Amendment dated January 30, 2006  
Reply to Office Action of September 29, 2005

Docket No.: 20386-00295-US

### REMARKS

Claims 4, 5, 7-14 and 17-26 are pending. Claims 1-3, 6 and 15-16 have been canceled.  
Claims 5 and 24 are amended herein.

#### Claim Amendments

Claims 5 and 24 have been amended to more precisely claim applicant's invention. The amendments are fully supported by the original specification and drawings. No new matter has been added.

#### Rejections - 35 U.S.C. §112

Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 4, 5, 7-14 and 17-26 as being indefinite under 35 U.S.C. §112, second paragraph.

The Examiner stated that the language stating "the at least one inlet chamber extends in a vertical direction and ends in an open inlet which is open in the horizontal direction and located at the top of the inlet chamber inside the furnace" is indefinite because it is unclear what is meant by "open in the horizontal direction." Applicants submit that the Examiner has properly interpreted the claim language in concluding that, based on the specification and drawings, the opening is within the horizontal plane. Since the Examiner has demonstrated an understanding of the claim language in view of the specification and drawings, applicant submits that the claim language in question is definite.

#### Claim Rejections - 35 U.S.C. §102

Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 5, 7-10, 12, 14, 17, 19-21 and 23-26 as being anticipated by Dietz (US 5,299,532).

Claim 24 has been amended to recite "furnace walls limiting the furnace and an open interior volume of the furnace" and to recite that the open inlet is "open in the interior volume of the furnace, wherein the open inlet allows particles of the solid material to freely enter the inlet

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chamber from the open interior volume of the furnace.” Thus, in the claimed invention, the particles of solid material can freely enter the inlet chamber from above from the open interior volume of the furnace. Furthermore, the particles can come from the internal circulation (IC) of the solid material as well as from the external circulation (EC) of the solid material, because the outlet of the external circulation opens directly into the open interior volume of the furnace above the open inlet of the inlet chamber, as recited in claim 5. Also with respect to claim 5, the outlet opens directly to the interior volume of the furnace, and the particles can therefore enter the furnace without passing through the inlet chamber if the inlet chamber is clogged by the material.

In Dietz, the open top of the chamber is not open in the open interior of the furnace, as claimed in present claim 24, because the whole chamber 94a, 94b is separated from the interior of the furnace by the upper portion 24a” of the partition 24. Thus, no material can ever enter the chamber freely from the interior volume of the furnace, as claimed in claim 24.

In Dietz, the inlet chamber 94a, 94b has no inlet for entry of material. The open top at the level of reference characters 108a and 108b in Fig. 4 (the upper edge of the chamber) is only for overflow of material *from* the chamber. The real inlet of the material for chamber 94a or 94b is the end of the conduit 58a or 58b that is *below* the upper edge of the chamber.

Column 8, lines 50-58 of Dietz describes the condition during start-up and low load conditions (in which the material cannot flow the usual route from the conduit 58a through the chamber 94a and through the openings 112a that are in the lower portion of the partition 88a):

“As a result, the volume of particulate material in the compartments 92a and 96a slump and therefore seal these compartments from further flow. Thus, the separated particulate material from the conduit 58a passes directly through the compartment 94a and, *after building up to the level of the opening 108a, passes through the opening 108a*, through the channel 70a, through the openings 34a in the partition 24a, and back to the furnace section 30a.”

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Thus, the upper part of the chamber 94a or 94b serves only as a type of overflow in special circumstances. Consequently, the material flow of Dietz is the reverse of that of the claimed invention in the condition in which some material passes the upper edge of the chamber 94a or 94b. In the normal operation in Dietz, no material passes the upper edge of the chamber 94a in either direction (up or down), because the material enters the lower part of the chamber 94a from the conduit 58a and leaves the chamber 94a through openings 112a in the lower part of the chamber 94a.

For at least the above reasons, Dietz does not anticipate claims 5, 7-10, 12, 14, 17, 19-21 and 23-26.

Claim Rejections - 35 U.S.C. §103

Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 4, 5, 7, 17, 20, 21, 24 and 25 as being unpatentable over Hyppanen (WO 97/46829).

As stated above, claim 24 now recites that the open inlet is "open in the interior volume of the furnace, wherein the open inlet allows particles of the solid material to freely enter the inlet chamber from the open interior volume of the furnace." In Hyppanen, there is no inlet chamber that would have an open top in the open interior volume of the furnace, nor is there a suggestion of such an open top. In Hyppanen, the material enters through a reactor chamber outlet 226 into the dilution chamber 216 (page 13, last paragraph). Therefore, the material is directed first to the outside of the reactor chamber (furnace) 212. The chambers 18 and 218 are also completely outside of the furnace 212.

For at least the above reasons, claims 4, 5, 7, 17, 20, 21, 24 and 25 are patentable over Hyppanen.

Applicant respectfully requests reconsideration and withdrawal of the rejection of claim 11 as being unpatentable over Dietz and Hyppanen. As stated above, both Dietz and Hyppanen fail to disclose or suggest an open inlet that is located at the top of the inlet chamber inside the

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furnace and that is open in the open interior of the furnace, as claimed in claim 24. Therefore, claim 11 is also allowable over Dietz and Hyppanen.

Allowable Subject Matter

Applicant thanks the Examiner for the indication of allowable subject matter in claims 13, 18 and 22.

*Conclusion*

In view of the above amendment, applicant believes the pending application is in condition for allowance.

If a fee is due, please charge our Deposit Account No. 22-0185, under Order No. 20386-00295-US from which the undersigned is authorized to draw.

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Respectfully submitted,

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